REMARKS

STATUS OF THE CLAIMS

In accordance with the foregoing, the Specification and claim 1 have been amended. New claim 19 has been added. Claims 1-19 are pending and under consideration.

No new matter is being presented and approval of the amended claims is respectfully requested.

CHANGES TO THE SPECIFICATION

The Specification has been amended herein to correct a typographical error. The word "date" in the paragraph beginning on page 2, line 19, is changed to "data".

Approval of the amended Specification is respectfully requested.

REJECTIONS OF CLAIMS 1-7 AND 9-13 UNDER 35 U.S.C. §102(e) AS BEING ANTICIPATED BY KAZAMA ET AL. (U.S. PATENT NO. 6,791,294)

The rejections of claims 1-7 and 9-13 are respectfully traversed and reconsideration is requested.

On page 3 of the Office Action, the Examiner states that Kazama et al. (hereinafter "Kazama") discloses a servo motor control system with at least two types of data transfer systems prepared for the serial bus, as recited in claim 1. The Examiner cites Figure 1 and states that items 60 and 64 correspond to two types of data transfer systems prepared for the serial bus.

However, item 60, as shown in Figure 1 of Kazama, is a serial interface on the servo amplifier 30 connected with the communication line 40. Further, item 64 is merely a sending buffer memory in which sending data is stored. (See column 4, lines 5-14). Therefore, the cited portions of Kazama in no way correspond with at least two types of data transfer systems prepared for the serial bus, as recited in claim 1, for example.

It is further submitted that Kazama does not teach or even suggest a servo motor control system in which at least two types of data transfer systems are prepared for the serial bus, and a data transfer system is selected by a parameter which has been set in the numerical control device, as recited in claim 1, for example. Therefore, it is respectfully submitted that claim 1 patentably distinguishes over the cited reference.

Claims 2, 3, 7, 9 and 10 depend from claim 1 and inherit its patentable recitations. Thus, it is respectfully submitted that claims 2, 3, 7, 9 and 10 patentably distinguish over the reference.

Similarly, claim 4 recites a servo motor control system in which at least two types of data transfer systems are prepared for the serial bus. Therefore, it is respectfully submitted that claims 4 patentably distinguishes over Kazama.

Claims 5, 6 and 11-13 depend from claim 4 and inherit its patentable recitations. Therefore, it is respectfully submitted that claims 5, 6 and 11-13 patentably distinguish over the reference.

REJECTIONS OF CLAIMS 8 AND 14-18 FOR OBVIOUSNESS UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER KAZAMA IN VIEW OF ASAHI (U.S. PATENT NO. 4,835,706) OR MATSUBARA ET AL. (U.S. PATENT NO. 6,442,444)

The rejections of claims 8 and 14-18 are respectfully traversed and reconsideration is requested.

Claims 8 and 14-18 depend from either independent claims 1 or 4 and inherit the patentable recitations of their respective base claims.

It is further submitted that neither Asahi nor Matsubara et al. teaches or suggests the features of the independent claims 1 and 4 described above. In fact, Asahi and Matsubara are merely cited as teaching a communication system for connecting a numerical controller to servo amplifiers by transmitting and receiving optical modules for serial communication.

Therefore it is respectfully submitted that claims 8 and 14-18 patentably distinguish over the cited references.

EXAMINER'S COMMENTS

On page 5 of the Office Action, the Examiner states that the subject matter of the invention is missing from the claims. He further states that this invention is directed to a data transfer system using the data bit rate to determine the idle pattern to identify the servo amplifiers, according to figures 4-6.

The present invention is directed to a servo motor control system in which at least two types of data transfer systems are prepared for the serial bus, and a data transfer system is selected by a parameter which has been set in the numerical control device.

Fig. 4 is a flowchart, according to an embodiment of the present invention, of an

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automatic bit rate selection process performed by the numerical control device. The subject matter for this embodiment is recited, for example, in claim 4, which recites:

> means for changing the frequency of signal change for a predetermined time in the data on the serial bus on the basis of a data transfer system selected from the at least two data transfer systems;
>
> means for monitoring data on the serial bus received from the servo amplifier connected to the serial bus to measure the frequency of signal changes for predetermined time, and deciding, on the basis of the measured frequency, whether the data transfer system of the servo amplifier is changed into the selected data transfer system or not; and
>
> means for performing communication by the selected data transfer system when said deciding means decides that the data transfer system is changed, and changing the data transfer system again when said deciding means decides that the transfer system is not changed and then searching for a possible data transfer system.

Similarly, Fig. 5 is a flowchart, according to an embodiment of the present invention, which shows the process executed by each of the servo amplifiers. The subject matter of this embodiment is recited, for example, in claim 3, which recites:

> each servo amplifier includes means for measuring a frequency of signal change for a predetermined time in a received signal on the serial bus and discriminating a data transfer system on the basis of the measured frequency of signal change, and
>
> at least a servo amplifier except for a most downstream servo amplifier in the daisy chain system includes first and second connectors for the serial bus, discriminates a data transfer system of the serial bus in the first connector on the basis of a signal received by the first connector and said discriminating means, and determines a data transfer system of the second connector on the basis of the discrimination result so that a servo amplifier connected to an upstream or a downstream in the daisy chain system is adaptable to a plurality of data transfer systems.

Fig. 6 depicts examples of frequencies of an idle pattern having a low bit rate, a data pattern having a high bit rate and a corrected data pattern having a high bit rate. The subject matter of Fig. 6 is recited, for example, in claim 5, which recites:

> The servo motor control system according to claim 4, wherein the servo amplifier discriminates a data transfer system on the basis of a frequency of signal changes for a predetermined time in a received signal on the serial bus, and transmits a signal having the same frequency of the signal change as that of the received signal when it is determined that the data transfer system is adaptable to the servo amplifier, so that the servo amplifier is adaptable to a plurality of data transfer systems

> Therefore, it is respectfully submitted that the subject matter of the invention is recited in the claims.

NEW INDEPENDENT CLAIM 19

New claim 19 recites:

A method of controlling a servo motor, connected to a servo amplifier with a serial bus, by a numerical controller, comprising:
preparing at least two types of data transfer systems for the serial bus, and
selecting a data transfer system by a parameter set in the numerical control device.

Therefore, it is respectfully submitted that new claim 19 patentably distinguishes over the cited references.

CONCLUSION

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. Further, all pending claims patentably distinguish over the prior art. There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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